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ABSTRACTS OF RESEARCH STUDIES IN AGRICULTURAL EDUCATION
COMPLETED IN 1964-65 IN THE NORTH ATLANTIC REGION.

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THIRTY-TWO DOCTORAL DISSERTATIONS, STAFF STUDIES, AND
MASTERS' THESES IN AGRICULTURAL EDUCATION ARE REPORTED IN THE
FOLLOWING AREAS -- ACADEMIC ACHIEVEMENT, ADULT FARMER
EDUCATION, ADVISORY COMMITTEES, AGRICULTURAL COLLEGES,
CURRICULUM, EDUCATIONAL NEEDS, EMPLOYMENT OPPORTUNITIES,
OFF-FARM AGRICULTURAL OCCUPATIONS, PREVOCATIONAL AGRICULTURE,
PROGRAM EVALUATION, STUDENTS, TEACHING METHODS, TECHNICAL
EDUCATION, VOCATIONAL AGRICULTURE, VOCATIONAL AGRICULTURE
TEACHERS, YOUNG FARMER EDUCATION, AND YOUTH CLUBS. THE
PURPOSE, METHOD, AND FINDINGS OF EACH STUDY ARE SUMMARIZED.
THE STUDIES ARE ARRANGED ALPHABETICALLY BY AUTHOR. (JM)

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ABSTRACTS OF RESEARCH STUDIES IN AGRICULTURAL EDUCATION

COMPLETED IN 1964-65

IN THE NORTH ATLANTIC REGION

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AL-SALMAN, MUHSIN HUSSAIN. The Role of Prevocational Agriculture in the Junior High Schools of New York State. Dissertation, Ph.D., 1965, Cornell University. 135 p. Library, Cornell University, Ithaca.

Purpose. -- The purpose of this study was (1) to provide a description of prevocational agriculture offered in the various junior high schools in New York State, and (2) to determine what selected educators in agriculture believe the objectives and course content should be.

Method. -- A list of seventeen objectives and a list of one hundred and three items of course content were assembled and prepared in the form of questionnaires. Items for course content were grouped into nine subject areas. A jury of seventeen members was selected. The jury was asked first to rank the seventeen objectives and then to respond to the hundred and three items of course content. Twenty-two teachers of vocational agriculture were randomly selected and asked to respond to the one hundred and three items of course content. Both jury members and teachers of vocational agriculture expressed their judgment along a four-point scale. Composite rank order was used to establish the importance of objectives of prevocational agriculture.

Findings. -- Responses of the jury members to the seventeen objectives revealed that the following three objectives had the most relative importance; (1) to acquaint pupils with a few of the agricultural problems, career possibilities, and sources of information; (2) to provide opportunities to explore the extent and importance of farming and related agricultural occupations in a community; and (3) to develop understanding and appreciation for the importance of agriculture in the present and future living and to pupils as producers and consumers.

Responses of the jury and teacher groups revealed that perceived expectations for the one hundred and three content items differed both within the groups and between the groups.

Jury members and teachers of vocational agriculture tended to agree on the following subject areas as having the most relative importance: Orientation and Guidance in Agriculture, Conservation of Natural Resources, and Miscellaneous Agricultural Subjects. Jury members and teachers of vocational agriculture tended to agree on the following subject areas as having the least relative importance: Animal Production Practices and Problems, and Leadership Training.

BARWICK, RALPH P. Identification of Off-Farm Agricultural Occupations. Preliminary Report, Agricultural Education Publication Number 3. 38 p. School of Agriculture, University of Delaware, Newark.

Purpose. -- To identify present and emerging agricultural occupations, other than farming, by job title, for which scientific, technical, and vocational agricultural education is needed in Delaware; and to determine the number of employees presently employed in these occupations and the number to be employed in the future.

Method. -- A list of the businesses in Delaware was secured from the Delaware Employment Security Commission. From this list 2,053 businesses were selected for the study. These businesses employed persons in occupations in which it was believed a knowledge of agriculture was useful or necessary. Interviews were conducted with employers in 267 businesses or 13 per cent of the total number of businesses in the state.

Businesses were stratified into 55 occupational sub-families. The "disproportionate random sample" method was used in drawing the sample. Survey data were obtained by personal interviews. Sub-families were grouped into eight occupational families for reporting.

Findings. -- Approximately 32,776 persons or 20 per cent of the total number of employees in Delaware, excluding farming, were employed in businesses in which it was believed the employees would find a knowledge of agriculture useful or necessary in their occupation. Approximately 5,050 or 15 per cent of the 32,776 were found to need agricultural competencies. During the next five years 2,154 additional and replacement employees having agricultural competencies are expected to be hired. The occupational families requiring the greatest percentages of employees needing agricultural competencies were Farm Machinery Sales and Service, and Ornamental Horticulture, with 65 and 45 per cent, respectively. The occupational family having the greatest number of employees to be hired during the next five years was Food Marketing and Distribution with an estimated need for 1,067 persons. Of the 5,050 persons employed that needed agricultural competencies, 2,610, or 52 per cent, were employed at the professional, managerial, and supervisory levels of employment. The supervisory level had the greatest number, 1,385.

BARWICK, RALPH P. Identification of Off-Farm Agricultural Occupations and the Education Needed for Employment in These Occupations in Delaware. Thesis, D.Ed., 1965, The Pennsylvania State University. 195 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To identify present and emerging off-farm agricultural occupations that require agricultural competencies, (2) to estimate the number of persons currently employed in these occupations, (3) to estimate the number to be employed in the future, and (4) to determine competencies needed in selected occupational families.

Method. -- A list of 2,053 businesses, services, and agencies in which it was thought a knowledge of agriculture would be useful or helpful was compiled. A disproportionate random sampling method was used to draw a sample of 267 businesses or services. The data were collected by personal interviews and grouped into eight occupational families for reporting.

Findings. -- There were 32,776 persons employed in the 2,053 off-farm agricultural businesses and services. This was approximately 20 per cent of the persons employed in the state excluding farming. Of the 32,766, 5,050 were found to need agricultural competencies. It was estimated, therefore, that 3.1 per cent of the total number of employed workers in the state, excluding farming, need training in agriculture.

The two occupational families that had the greatest number of employees needing agricultural competencies were Food Marketing and Distribution and Ornamental Horticulture. During the next five-year period following this survey it was estimated the number of employees needing agricultural competencies will increase by 17.7 per cent. The greatest needs for employees will be in Food Marketing and Distribution and Ornamental Horticulture.

Of eight occupational families, detailed inspection was given to Food Marketing and Distribution and Ornamental Horticulture. Employers in these families indicated that workers need business and distributive education competencies in addition to knowledge in agriculture. Many of the competencies needed are also in the area of human relations.

BEARD, HARRY G. A Study of the Meaning of Selected Program Planning Concepts in Vocational Education. Thesis, D.Ed., 1965, Cornell University. 108 p. Library, Cornell University, Ithaca.

Purpose. -- This study was conducted to measure the meaning assigned by local school personnel to new program planning concepts in vocational education in North Carolina. Differences in meaning were determined (1) between a new and a comparable traditional concept, (2) between the cluster of new concepts and the cluster of traditional concepts, and (3) between the cluster of new concepts and a cluster of concepts on experimentation and inservice education which were proposed as having a requisite relationship to the new program planning concepts. The new concepts studied were "a local plan for vocational education," "introduction to vocations," and "revised vocational agriculture curriculum." Comparable traditional concepts, respectively, were "a local plan for vocational agriculture," "introduction to agricultural occupations," and "vocational agriculture I, II, III and IV." The requisite concepts were comprised of "research in vocational education," "pilot programs in vocational education," and "inservice education."

Method. -- A "semantic differential" was constructed and administered to a 20 per cent random sample of teachers of agriculture in North Carolina to elicit judgments on the meaning of the program planning concepts. Judgments were elicited for the factors of meaning of "evaluation," "potency," and "oriented activity." The semantic differential was administered to subjects in group interviews. Comparisons by individual concepts for each factor of meaning employed the *t*-test. The Wald-Wolfowitz two-sample runs test was used to make comparisons by cluster of concepts.

Findings. -- On the basis of the meaning of individual concepts, it was found that: (1) there were no differences in the meaning assigned to the new concept, "a local plan for vocational education," and the traditional concept, "a local plan for vocational agriculture," indicating that unified local planning in all occupational fields and for all vocational education services, and local planning on the traditional basis are equally good, strong, and active; (2) there were differences in the meaning assigned to the new concept, "introduction to vocations," and the traditional concept, "introduction to agricultural occupations," indicating that unified efforts in instructional vocational guidance and counseling through a course called introduction to vocations are poorer, weaker, and less active than the traditional approach to guidance and counseling in vocational agriculture; and (3) there were differences in meaning assigned to the new concept, "revised vocational agriculture curriculum," and the traditional concept, "vocational agriculture I, II, III, and IV," indicating that beginning with a general agriculture course followed by occupational speciality courses is better, stronger, and more active than the traditional content organization of vocational agriculture I, II, III, and IV.

On the meaning of concepts by cluster, it was found that: (1) there were no differences in the meaning assigned to the cluster of new concepts and the cluster of traditional concepts, and (2) there were no differences in the meaning assigned to the cluster of new concepts and the cluster of requisite concepts. These findings indicate a lack of differentiation in meaning between the cluster of new concepts and the cluster of traditional concepts, and a general compatibility in meaning of the cluster of new concepts and the cluster of requisite concepts. Actually, it was found that a closer semantic relationship existed between the new and traditional concepts and between the new and requisite concepts than existed among the new concepts.

BICE, GARRY ROBERT. Information Concerning Off-Farm Agricultural Occupations in New York State. Thesis, M.S., 1965, Cornell University. 153 p. Mann Library, Cornell University, Ithaca.

Purpose. -- The purpose of the study was to obtain first-hand information concerning the off-farm agricultural occupations in the 260 school districts offering instruction in agriculture in the State of New York and in two schools districts within the Adirondack Area. Eight questions were listed for which answers were sought.

Method. -- A stratified-random sample of school districts offering instruction in agriculture was utilized. Representatives of businesses or services, whose employees used agricultural competencies, were interviewed in each of eighteen school districts.

Findings. -- Five hundred and ninety-four different businesses or services and 289 different job titles were located. Fifty-four job titles were described in detail. Information reported for each of the job titles included: (1) corresponding Dictionary of Occupational Titles code number, (2) nature of work and areas of competency needed, (3) level of employment and personal qualifications, (4) method of advancement, (5) wages, and (6) estimate of future employment.

BLACK, WILLIAM W. A Program of Vocational Agriculture for the Avella High School, Avella, Pennsylvania. Thesis, M.S., 1965, West Virginia University. 126 p. Agricultural Education Department, West Virginia University, Morgantown.

Purpose. -- (1) To explore the agriculture conditions in the community and use the findings to develop a course of instruction for day and young-adult farmer classes, and (2) to explore new developments in vocational agriculture as related to the National Vocational Education Act of 1963.

Method. -- Questionnaires were used to obtain information concerning the farming situations of the day students presently enrolled in the vocational agriculture program. Professional people in agriculture as well as agriculture agencies were contacted to obtain pertinent information. To obtain information on new developments in vocational agriculture, literature on new trends in courses of instruction since 1963 were reviewed.

Findings. -- A review of farming conditions and other pertinent information indicated a need for a course of instruction centered around production agriculture with some emphasis on non-farm occupations. Fewer farmers are farming larger acreages. There is a greater need for individuals who are trained in agriculture sales and services. Most of the farms in the school area are too small and have insufficient income for a full-time operator. The greatest amount of agriculture income was derived from dairy production. Sheep production was the second largest for any county in the state.

A course of instruction was designed for day and young-adult farmer students which embraced these findings.

CARDOZIER, V. R. Undergraduate Academic Achievement and Teaching Performance. Staff Study, 1965, University of Maryland. 68 p. Agricultural Experiment Station, University of Maryland, College Park.

Purpose. -- To determine the relationship between achievement in undergraduate study, both en toto and in selected disciplines, and performance in teaching agriculture in secondary schools.

Methods. -- The sample consisted of a 25 per cent random cluster sampling of agricultural education graduates from United States institutions which prepare agriculture teachers, classes of 1959 and 1960. N equaled 188 teachers.

Undergraduate academic achievement was taken from each teacher's transcript. Measures of teaching performance were based on ratings by teachers' principals and district supervisors of vocational agriculture, using a condensation of Sledge's scale for rating vocational agriculture teachers.

Relationships were determined with an adaptation of the Pearson r formula and tested with standard t-test. Differences between groups of teachers, based on ratings, were determined with F and Chi square tests.

Findings. -- One of the objectives was to determine whether teacher performance differed when teachers were grouped into low, middle, and high groups according to undergraduate academic achievement. Based on analysis of variance, no differences were found except when teachers were grouped according to achievement in speech and student teaching, in which cases they were divided into two groups, instead of three, because most teachers had received only one mark in each. In speech and student teaching, those who had received higher marks were rated, for the most part, higher as teachers by their principals and supervisors.

With respect to the relationship of teaching performance to academic achievement, values were positively significant in the cases of biological sciences, agricultural education, and student teaching. On the other hand, a significant negative correlation was found in the cases of mathematics, general education (pedagogy), and agricultural economics. Significant differences were not found in English, physical sciences, social sciences, humanities, plant and soil sciences, animal sciences, agricultural engineering, and total grade point average.

The question of homogeneity of variance of teaching performance when comparing low, middle, and high groups, in terms of academic achievement, was analyzed. When teachers were divided according to achievement in English, the middle third appeared to vary least; such was the case when they were similarly divided by mathematics grades. In others, the least variation occurred often among the low group and about equally often among the high group. The lack of consistency in variation provided no basis for suggesting any difference, generally, in the variation among low, middle, and high groups.

Findings of this study show only a minor relationship between undergraduate academic achievement and teaching performance. However, they are not inconsistent with those of similar studies of smaller groups of agriculture teachers and teachers of other subjects.

If there is a general relationship between undergraduate academic achievement and performance in teaching vocational agriculture, this study did not establish it.

COLEBANK, CARL ALLEN. An Evaluation of Future Farmers of America Contests and Awards in West Virginia by High School Principals, Teachers of Vocational Agriculture, and Future Farmers of America Chapter Presidents. Thesis, M.S., 1965; West Virginia University. 81 p. Library, West Virginia University, Morgantown.

Purpose. -- (1) To show how high school principals, teachers of vocational agriculture, and FFA chapter presidents felt about having contests and awards; (2) to determine the feasibility and/or limit for using class time to prepare for contests and awards; (3) to find out how those surveyed felt about the number of contests now held; (4) to determine if a West Virginia FFA Foundation is needed; (5) to see if certain contests or awards should be eliminated or revised; and (6) to determine, on the basis of one hundred points, how those surveyed rated certain specific benefits derived from contests and awards.

Method. -- Data were collected by means of a questionnaire directed to ninety-three high school principals, one hundred and seven teachers of vocational agriculture, and ninety-one chapter presidents in West Virginia. One hundred and eighty-three or 65 per cent of all questionnaires were returned.

Findings. -- The individuals surveyed were nearly unanimous in their opinion that contests and awards should be a part of the vocational agriculture program. Respondents favored, by a wide margin, using some class time to prepare for contests and awards. Over fifty per cent of those surveyed thought that twenty-five per cent was the right amount of class time to prepare for contests and awards. Teachers of agriculture were of the opinion that there were too many contests and awards in the present West Virginia program. The high school principals and FFA presidents were satisfied with the number as it now stands.

Seventy per cent of the responses favored the establishment of a West Virginia FFA Foundation patterned after the National FFA Foundation. There was much difference of opinion concerning the amount of class time that should be used to prepare for contests and awards. The consensus was that slightly more non-class than class time should be used for contest preparation and that more time was needed to prepare for contests involving teams. Over sixty per cent of the teachers favored the elimination of the scrapbook contest. Principals and FFA presidents were in favor of omitting this contest from the program. The secretary's book, treasurer's book, talent, and FFA cooperative study were other contests or which it was felt further evaluation was needed.

On the basis of one hundred points, the following summary of the evaluations of principals, teachers, and FFA presidents of the benefits derived from FFA contests and awards was made: agricultural knowledge - twenty-six points; leadership - eighteen points; public relations - thirteen points; cooperative endeavor - ten points; citizenship - ten points; scholarship - nine points; community service - eight points; and recreation - six points.

COOPER, ELMER L. Characteristics of High School Pupils Enrolled in Vocational Agriculture Classes in Selected Maryland Schools. Thesis, M.S., 1965, University of Maryland. 83 p. Library, University of Maryland, College Park.

Purpose. -- To identify certain abilities, home experiences, interests, and vocational aspirations of boys enrolled in vocational agriculture in Maryland.

Method. -- Subjects were 10th, 11th, and 12th grade vocational agriculture pupils in 13 schools located in 12 of Maryland's 23 counties. All 10th and 12th grade pupils in the study schools constituted the basis for comparing vocational agriculture pupils with all pupils in their grades. Data consisted of pupil responses to a survey instrument plus standardized test scores on file in the schools. The chi-square test of independence was used to test relationships between selected factors.

Findings. -- (1) Most respondents had extensive farm experiences. (2) Two-thirds reported farm residence, but only one-third of their fathers were full-time farmers, while one-third farmed on a part-time basis. (3) Three-fourths of the fathers were either farmers, craftsmen, or operative workers. (4) Eighty-eight per cent of the pupils planned occupations that utilized skills learned in the program. (5) FFA was a very positive factor in pupil recruitment. (6) Standardized test scores indicated significantly lower intelligence level and lower mathematic achievement of pupils enrolled in agriculture as compared with the total male population of their grade. (7) There was a positive relationship between high grades and full-time farm work responsibilities.

CUSHMAN, HAROLD R., CHRISTENSEN, VIRGIL E., and BICE, GARRY R. A Study of Off-Farm Agricultural Occupations in New York State. Staff Study, 1965, Cornell University. 95 p. Agricultural Education Division, Cornell University, Ithaca.

Purpose. -- (1) What are the off-farm agricultural occupations? (2) What proportion of time is devoted to use of agricultural competencies in off-farm agricultural occupations? (3) How many persons are employed in such occupations? (4) At what levels of employment are such occupations found? (5) What is the outlook for employment opportunities in these jobs? (6) What agricultural competencies are needed by workers in off-farm agricultural occupations?

Method. -- The 260 school districts in New York State offering instruction in agriculture during the school year 1963-64 were selected as the study population. A stratified random sample of 16 school districts of 260 offering instruction in agriculture was selected. Farming area, K-12 school population, and "full value of taxable real property per resident child in weighted average daily attendance" were the bases for stratification. An additional sample of two school districts was selected in the Adirondack area. Interview schedules and an interviewer's manual were developed, field tested, and revised. Representatives of 541 businesses and services were interviewed in the 16 school districts. An additional 53 businesses or services were studied in the Adirondack area.

Findings. -- Two hundred and thirteen different job titles were identified in the 16 school districts. Employers reported that workers in off-farm agricultural occupations used agricultural competencies 83 per cent of the time on the job. It was estimated that 28,685 full-time workers and 16,841 part-time workers were employed in off-farm agricultural occupations in the 260 school districts. On a per school district basis, it was estimated that there were 110 full-time and 65 part-time persons so employed. Part-time workers were most often found in semi-skilled positions. Employers estimated a growth in off-farm agricultural occupations between 1964 and 1969 of 19 per cent for full-time workers and of 13 per cent for part-time workers. It appeared that training programs should emphasize competencies in: (1) agricultural business and agricultural mechanics for prospective workers in all occupational families, (2) plant science for prospective workers in Crops Marketing and Processing, Forestry and Soil Conservation, Wildlife and Recreation, Ornamental Horticulture, and Agricultural Service occupations, (3) Animal Science for prospective workers in Dairy Manufacturing and Processing, Livestock Marketing and Processing, Other Livestock Industry and Farm Service occupations, and (4) Forestry, Conservation, and Outdoor Recreation for prospective workers in these fields.

CUSHMAN, HAROLD R. and JARMIN, MARTIN V. The Organization and Utilization of Agricultural Advisory Boards in New York State. Staff Study, 1965, Cornell University. 118 p. Agricultural Education Division, Cornell University, Ithaca.

Purpose. -- The purposes of the study were: (1) to determine the characteristics of agricultural advisory boards in New York State, (2) to discover what trends are taking place in the organization and utilization of agricultural advisory boards in New York State, and (3) to ascertain how "effective" and "ineffective" agricultural advisory boards differ in membership, appointment of members, manner in which they function, and activities engaged in.

Method. -- The 258 school districts in New York State offering instruction in agriculture during the school year 1960-61 were selected as the study population. A pre-coded questionnaire was constructed, field tested, revised, and mailed in 1961 to teachers who had taught agriculture in New York secondary schools during 1960. The practices and characteristics of boards were grouped, tabulated, and transferred to I.B.M. cards. Trends were discovered by comparing characteristics cited by Coombs in 1945-46 with 1960-61 data. Boards rated effective and ineffective were separated. To measure the difference between the effective and ineffective boards in practices or characteristics, a difference in proportion test, chi square, or a median test were employed where appropriate.

Findings. -- Eighteen trends were cited in the organization and utilization of agricultural advisory boards in New York State. A comparison of 100 effective and 99 ineffective agricultural advisory boards confirmed the implication drawn from the review of previous research that effective boards could be expected to differ from ineffective boards in the following ways: (1) Effective boards have a significantly larger number of appointed members, a significantly greater number of meetings, and have a higher attendance of members. (2) A significantly greater proportion of the effective boards; (a) participate in the nomination of appointed members; (b) notify new members of their appointment by letter from the board of education; (c) arrive at recommendations in group meetings, schedule dates of future meetings at their first meeting, schedule meetings at equal intervals throughout the year, plan a program of work, prepare an agenda for meetings, and use rules of parliamentary procedure; (d) study and make recommendations about vocational agriculture programs concerning course of study content, course sequence, physical facilities, need for young and adult farmer programs, evaluation of programs, summer program of work, locating farms for work experience, public relations, FFA, annual program of work, and standards for farming programs; and (e) make a policy of meeting with a new teacher soon after his arrival in the community for the purpose of orienting him.

A significantly greater proportion of teachers who had effective agricultural advisory boards cited as advantages of such boards factors relating to the improvement of public relations and improvement of teacher efficiency and effectiveness.

DAUGHERTY, R. GENE. The Development and Evaluation of a Unit of Instruction on Beef Marketing. Thesis, M.Ed., 1965, The Pennsylvania State University. 121 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose. -- The purposes were (1) to develop a teacher's unit plan on beef marketing, (2) to develop a student resource handbook on beef marketing, (3) to measure the knowledge gained and the adoption of selected practices in a course on beef marketing taught to young farmers in five Lancaster County high schools, and (4) to compare selected factors dealing with the personal, professional, and educational qualifications of young farmers who enrolled for and completed a marketing course with their subsequent scores on a multiple-choice achievement test on beef marketing.

Method. -- A teacher's unit plan and a student resource handbook of subject-matter on beef marketing were developed. The plan and the handbook were field-tested in five Lancaster County high schools. Sixty-four young farmers enrolled for and completed an eighteen-hour course on beef marketing during a five-week period. Tests were given and a checklist of beef marketing practices was completed at the beginning and at the end of the course.

Findings. -- The unit of instruction on beef marketing including the teacher's unit plan and the student resource handbook were effective tools in teaching beef marketing to young farmers in Lancaster County as measured by the achievement test and by the number of marketing practices adopted.

Sixty-four young farmers in five different schools scored significantly higher, at the .01 per cent level, on a multiple-choice achievement test which followed a pretest and six weeks of beef marketing instruction. Pretest and test scores were compared by t-test. Differences between the number of recommended marketing practices being used by young farmers at the start of the course and the number being used at the end of the course were significant at the .01 per cent level when compared by t-test.

Negative coefficients of correlation, significant at the .01 per cent level, were found between age and number of market news publications read (-0.376) and between years of beef marketing experience and number of market news publications read (-0.334). Positive coefficients of correlation, significant at the .01 per cent, were found between pretest scores and number of market news publications read (0.332), between pretest scores and number of classes attended (0.326), and between pretest scores and test scores (0.692).

DAYGER, WILLIS G. The Effectiveness of the Programed Instructional Unit Figuring Board Feet for Teaching Vocational Agriculture Students in New York State. Essay, M.Ed., 1965, Cornell University. 149 p. Library, Cornell University, Ithaca.

Purpose. -- The primary purpose of this study was to determine the educational effectiveness of the programed instructional unit on Figuring Board Feet as compared with conventional teaching method. A secondary purpose was to determine the attitude of students toward using programed instruction for learning.

Method. -- A linear-type programed unit of instruction on figuring board feet was developed. A criterion examination and a student attitude survey form were developed.

Data were collected in 24 schools from 101 students in the experimental group and from 156 students in the control group. Teachers in the experimental group administered the programed materials to their students while teachers in the control group were instructed to teach the unit in the conventional manner.

Findings. -- Based on the increase in mean scores between the pre-test and the post-test, the programed unit on Figuring Board Feet was an effective unit of instruction. The programed unit was as effective as the control method. The programed unit was more efficient in the use of classroom time than the control method. A majority of the students had a favorable attitude toward programed instruction and felt that it should be used more frequently.

DENNISTON, ROY T. A Study of Selected Personal Influences on Student Decisions to Attend the New York State College of Agriculture at Cornell University, 1957-1961. Essay, M.Ed., 1965, Cornell University. 35 p. Agricultural Education Division, Cornell University, Ithaca.

Purpose. -- The primary purpose of this study was to determine which selected people had the greatest personal influence on student decisions to attend the New York State College of Agriculture at Cornell. The secondary purpose was to compare the influence of the vocational agriculture teacher with that of other selected people.

Method. -- Students were selected on the bases of: units of vocational agriculture taken in high school, type of high school attended, and date of entry into Cornell. Those offering vocational agriculture for entrance credit were the vocational agriculture group; those not offering vocational agriculture for entrance credit were the non-vocational agriculture group. Both groups were sufficiently small to use the entire population in analyzing the returns.

Findings. -- For the vocational agriculture group, parents, vocational agriculture teacher, and the high school guidance counselor had the greatest influence on the decision of students to attend the New York State College of Agriculture at Cornell. The degree of influence of the vocational agriculture teacher depended directly upon the number of units of vocational agriculture taken by the student. The high school guidance counselor was always in either second or third place in degree of influence, again depending upon the number of units of vocational agriculture taken by the student.

For the non-vocational agriculture group, parents again had the greatest influence, followed by the guidance counselor. "Cornell Alumnus" was third in terms of influence on this group.

GRIMES, ROBERT HARRISON. A Comparison of Courses Taken and Taught by Teachers of Vocational Agriculture. Problem, M.S., 1965, West Virginia University. 83 p. Library, West Virginia University, Morgantown.

Purpose. -- To evaluate what is being taught in vocational agriculture, what related subject matter courses teachers have taken, and whether taking a large number of courses in any subject matter area has a direct effect upon the amount of time spent teaching in that area.

Method. -- Eighty-seven West Virginia vocational agriculture teachers, representing 80 per cent of the total number in the state, were included in the study. Time planned for teaching in eighteen areas of vocational agriculture was taken from courses of instruction of the vocational agriculture departments. Number of credit hours earned in related college courses was taken from the official university records of each teacher. The hours planned to be taught in high school and related credit hours earned in college were tabulated by subject matter areas. Correlations were computed for hours taught in high school and credit hours learned in college to determine the relationship that existed.

Findings. -- A correlation of .42, significant at the .01 per cent level, was found between the number of hours taught per subject matter area and the number of credit hours earned in related college courses per teacher. Mean hours taught per department per subject matter area was 38.4. Mean number of credit hours earned in related college courses per teacher was 4.1. With the exception of tobacco, which is only taught in a few departments, the correlations of high school hours and related college credit hours for the individual subject matter areas was very low. These correlations ranged from -.094 to .124.

There was a wide variance in the number of credits vocational agriculture teachers had acquired in specific subject matter areas. The time spent teaching in any subject matter area was apparently determined more by the teacher's analysis of the needs of the students than by the amount of training the teacher had had in that particular subject matter area. Within any subject matter area of vocational agriculture, there was little relationship between the number of credits a teacher had earned in the area and the time spent teaching in that same area. There is a relationship, however, in that the teachers were teaching the subjects they had been taught.

It was further concluded that the best preparation a teacher can obtain to meet all situations in teaching vocational agriculture is as wide a course of training as possible with emphasis on the more important agricultural enterprises in the state.

HEYLER, EDWARD E. The Influence of High School Vocational Agriculture Departments on Enrollment in Agricultural Colleges by Pennsylvania High School Graduates. Thesis, M.Ed., 1965, The Pennsylvania State University. 35 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To determine if a high school department of vocational agriculture appears to influence youth to enroll in agricultural courses in colleges and (2) to determine if post High School enrollment in agricultural colleges in 1960 differed from that of 1964.

Method. -- A listing of schools and their student populations was secured from the State Department of Public Instruction. Thirty-five schools with student populations between 300 and 600 pupils were randomly selected from the list. Thirty-five schools of similar size with departments of vocational agriculture were randomly selected. Questionnaires were sent to the 70 schools, requesting information on male students graduated during the years 1960 through 1964.

Findings. -- High school departments of vocational agriculture apparently do influence young people to study agriculture in college. Approximately 12 students per year from the high schools with departments of vocational agriculture enrolled in four-year colleges of agriculture. The similar sized schools without departments of vocational agriculture averaged one student enrolled per year.

Differences discovered when comparing college enrollment in 1960 with 1964 were: high schools both with and without departments of vocational agriculture showed more students enrolling in four-year colleges in 1964; students enrolling in four-year colleges of agriculture from high schools with a department of agriculture remained the same while the number enrolling from high schools without agriculture departments decreased; and the number of students enrolling to study a two-year agricultural course in college decreased for both types of schools over the five-year period but the decrease was not as large for high schools with departments of vocational agriculture.

HOOVER, N. K., McCLAY, D. R., AND STEVENS, G. Z. Technical Education Needs of Persons Engaged in Agricultural Occupations, a preliminary report. Staff Study, Teacher Education Research Series, Volume 6, Number 1, 1965, The Pennsylvania State University. 38 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose. -- To identify agricultural occupations and job titles in Pennsylvania and to estimate the present numbers of employees and annual entry opportunities; to list competencies needed for entry and advancement and to determine job characteristics such as salary, minimum age, labor law and union restrictions, required education and experience, and licensing and certification requirements; and to group occupations and job titles for which there are common technical education needs.

Method. -- A list of all businesses in 17 counties was obtained from the Pennsylvania Department of Labor, Bureau of Employment Security. In each county, a committee made up of representatives from agricultural education, agricultural extension, County School Office, local Chambers of Commerce, County Commissioners, agricultural business, non-agricultural business, school administrators, guidance counselors, and the Bureau of Employment Security was appointed by the area supervisor of agricultural education. The committee selected from the total list of businesses those that were thought to have employees who needed agricultural competencies. The committee added other businesses and services not included in the B.E.S. list. Businesses were categorized into eight occupational families. Teachers of agriculture and area supervisors interviewed a random sample of businesses. The per cent of businesses interviewed varied from 25 to 50 depending on the number of teachers in the county and the number of businesses in each category.

Findings. -- In the 17 counties, 2,142 selected businesses employed 26,380 persons. Approximately 50 per cent, or 13,668, needed agricultural competencies.

Of the estimated 13,668 employees who needed agricultural competencies, approximately 10 per cent were working at the professional level, 10 per cent were working at the managerial level, 12 per cent were working in sales, and 58 per cent were working at the skilled or semi-skilled level.

Approximately 30 per cent of the estimated 13,668 employees were employed in the Farm Machinery and the Farm Supply and Equipment occupational groups. Approximately 25 per cent of the employees were working in Ornamental Horticulture occupations.

Seventy-five job titles account for 85 per cent of all workers expected to be hired in the next five years. Twelve skilled and semi-skilled titles represent over 50 per cent of the expected turnover, not increase, in the same period.

HULL, WILLIAM LEE. A Procedure for Sequencing Self-Instructional Materials for Concept Attainment of Human Relations Abilities in Agricultural Business Occupations. Thesis, D.Ed., 1965, The Pennsylvania State University. 87 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop and test a factor analysis procedure for sequencing self-instructional materials associated with concept attainment. Effects of a computer generated "psychological" sequence compared with a random sequence of concepts on sequential decision-making by three achievement levels of students were determined.

Method. -- The first phase of the experiment included 126 students in seven randomly selected Pennsylvania high schools. In each school three randomly sequenced self-instruction booklets were presented to randomly assigned equal numbers of junior and senior students in vocational agriculture classes. The booklet dealt with ten human relations concepts which employees in agricultural businesses would need to know. Each concept presentation included a description of the term, an example of its use, and a case study of an agricultural business situation illustrating the concept.

The students responded to a set of three questions following the case and to three questions of a more general nature. The criterion test included 30 questions relating to the ten human relations cases and 30 questions on the generalized concepts. Each student responded to the first question in the set of three and one of the other two. This mechanism made possible an evaluation of each student's pattern of responses. The student responses were factor analyzed to generate the psychological sequence of concepts.

The psychological sequence of concepts was tested against a random sequence with 294 junior and senior students in 15 schools in the second phase of the experiment. The two sequences were assigned randomly to the students in each school. Reading comprehension test scores and human relations aptitude test scores were used as controls in an analysis of covariance design. The .05 level of significance was used. A t-test of uncorrelated proportions was used to determine the effects of sequence within the response patterns. Rank-difference correlations was used to measure sequential decision-making.

Findings. -- When compared with the random sequence, the psychological sequence did not result in significantly higher scores at the .05 level of significance when all of the data were considered. In all comparisons except one, scores of the students using the psychological sequence booklet were larger, apparently influenced by higher reading comprehension and aptitude test scores. Within groups, differences between the covariate scores were not significant.

The effect of sequence in instructional materials is specific to the achievement level of the students and the difficulty level of the materials. The low achievement students showed the greatest difference on the questions specific to the cases, in favor of the psychological sequence. Responses from the high achievement students using the psychological sequence resulted in significant differences when they were evaluated by the questions relating to the concept generalizations. The generalization questions were more difficult than the questions specific to the cases. This suggests that sequence becomes more important as difficulty of the materials increases.

JUDGE, HOMER V. Employment Opportunities and Needed Competencies in Off-Farm Agricultural Occupations in Massachusetts. Staff Study, 1965, Massachusetts Department of Education. 47 p. Division of Vocational Education, Massachusetts Department of Education, Boston.

Purpose. -- The purposes were: (1) to determine the present number of employees and annual entry opportunities in off-farm agricultural occupations in Massachusetts, (2) to determine the competencies required of workers, and (3) to ascertain the instructional needs of those individuals seeking entry and advancement.

Method. -- Names and addresses of 3,479 firms and employers with businesses related to agriculture were obtained from the State Department of Employment Security. A ten per cent random sample of the 3,479 firms and employers was taken. Businesses and employers were stratified according to 13 major group classifications. The state was divided into five geographical areas for survey purposes. All information and data was collected by personal interviews with employers, using two interview schedules.

Findings. -- Three of the largest areas of off-farm agricultural employment in terms of number of workers employed were: (1) horticulture, (2) farm implements and equipment, and (3) food distribution and processing.

The number of workers identified who needed agricultural competencies in the performance of their jobs was found to be greater than the total number of persons engaged in production farming in the state.

Employers expressed a need for better trained workers in off-farm agricultural occupations and a desire for their present employees to have in-service training.

Interviewers reported that employers of off-farm agricultural workers lacked information concerning opportunities to arrange for in-service education.

KORONA, ROBERT L. A Course of Study in Ornamental Nursery for the Blair County Technical School Based on Skills Needed by Employees. Thesis, M.Ed., 1965, The Pennsylvania State University. 52 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To develop an occupationally oriented course of study to teach the knowledge, abilities, and skills necessary for a student to enter and advance in ornamental nursery occupations.

Method. -- Course objectives were established through a review of literature. A list of specific job titles used in the ornamental nursery industry was prepared. The abilities and skills needed for entry and advancement in each job were listed with the assistance of six ornamental nurserymen in Blair and Huntingdon Counties. Abilities and skills were incorporated into a course of study using the nurserymen's responses as guidelines for the allotment of teaching time.

Findings. -- Job titles in the ornamental nursery industry were found to be poorly defined and were not uniform from one business to another. The following list of eight job titles was established: general manager or owner, production or sales manager, products salesman and landscape consultant, storage manager, shipping and packing clerk, building and equipment maintenance man, nursery and greenhouse crew foreman, and nursery and greenhouse worker.

The survey showed that general managers and owners needed the greatest number of abilities and skills. Shipping and packing clerks and storage managers needed the smallest number of skills.

The group of skills dealing with cultural practices was found to be the most important and was allotted nearly 40 per cent of the recommended teaching time. The survey also showed that the ability to identify trees and shrubs was the most important single ability for an employee to have. The skill of pruning ornamentals was next in importance.

LILLY, JAMES A. Continuation Planning For and Carrying Out of The Young Farmer Program for Trap Hill Community. Problem, M.S., 1965, West Virginia University. 40 p. Library, West Virginia University, Morgantown.

Purpose. -- To determine the proper areas of instruction for a young farmer class in the Trap Hill High School area, which would result in a continuing plan to improve the over-all farming program.

Method. -- Data were collected by means of a questionnaire completed by farmers of the Trap Hill Community. Those surveyed worked an excessive number of days off the farm. The majority were classified as part-time livestock farmers. Fifty farmers were contacted and forty-five completed the questionnaire.

Findings. -- The average age of sixty-six years for all farmers surveyed indicated that very few young men are entering farming in the high school area surveyed. These men worked an average of 148 days off the farm per year. Thirty-two of the farmers did not sell any crops from their farm, even though the average size of the farms was 112 acres.

Two facts stand out sharply: (1) the farms are predominantly part-time livestock farms, and (2) most could reasonably become full time farms. Farmers have sufficient land and machinery for several of them to become fully employed. The market and facilities for marketing, in this case local farm and livestock markets, are available.

Marketing as a whole seems to be a rather foggy matter in the minds of many of those contacted. Ninety-three per cent own the land they farm. A program which would include truck and small-fruit crops, combined with an improved livestock program, could better utilize the time of most farmers.

McGEE, IVAN C. The Identification and Analysis of Agricultural Occupations in Seventeen Pennsylvania Counties. Thesis, D.Ed.; 1965, The Pennsylvania State University. 148 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To estimate the present number of employees needing agricultural competencies by occupational family, level of employment, and job title, (2) to estimate the number of employees needed and the annual number of entry opportunities five years from now, (3) to determine job characteristics, and (4) to cluster competencies and job titles in the farm machinery family.

Method. -- A list of 2,142 businesses and services with employees needing agricultural competencies was compiled for 17 counties in Pennsylvania. A random sample of businesses and services was taken. The employers were interviewed and employment data were collected. Data were tabulated and reported by occupational family, level of employment, and job title. Job titles and job competencies in the farm machinery family were factored using factor analysis with varimax rotation.

Findings. -- There were 9,221 full-time and 3,316 part-time employees in the 2,142 businesses and services surveyed in the 17 Pennsylvania counties. An increase of 1,498 employees is expected in the next five years and an additional 3,765 persons are expected to be hired as a result of anticipated employee turnover.

Nearly 60 per cent of the present employees were in the skilled and semi-skilled levels of employment. Approximately 79 per cent of the employees to be hired in the next five years are expected to be in the skilled and semi-skilled occupational levels.

There were 271 job titles identified in the study. Employees in 37 of the job titles represented 54 per cent of the total number of persons employed full-time.

A high school education was desired for beginning employment in 90 per cent of the job titles. Employers preferred to employ persons with a farm or rural background in 72 per cent of the job titles.

The competency factors produced when the job titles were factored indicated that competency areas could be formulated and could serve as a basis for the development of programs for the education of persons planning to be employed in farm machinery occupations.

McMULLEN, JAMES R. A Comparison of Methods of Instruction Used in Teaching Agricultural Information to Vocational Agriculture Students. Thesis, M.Ed., 1965, The Pennsylvania State University. 78 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To measure the effectiveness of two methods of teaching selected areas in farm forestry and dairy products. One group received instruction from their own vocational agriculture teacher and the other group received their instruction from subject matter team teaching specialists.

Method. -- Ninth grade classes of students in vocational agriculture departments in high schools in Indiana County, Pennsylvania, were selected. Two of the schools used a subject matter team procedure to teach selected areas of farm forestry and dairy products. One instructor, a specialist in farm forestry, taught the forestry unit in his own school and taught the same unit in another school. At the time of the exchange of teachers, the second instructor taught the dairy products unit in the first school. The other schools used the teacher's own method of teaching the same areas of farm forestry and dairy products. At the completion of sixteen class hours of instructional time, tests on farm forestry and dairy products were administered. Individual differences of students were controlled by covariance analysis using scores from the sixth grade California Test of Mental Maturity. Final test scores were the criterion measure.

Findings. -- There was a significant difference in the test scores between the two methods of teaching selected areas of farm forestry and dairy products. Ninth grade vocational agriculture student achievement was greater for those students taught by the subject matter team teaching specialist method.

A team teaching evaluation form was completed by the students in the instruction phase of the study. Ninth grade vocational agriculture students indicated a strong desire for more team teaching in vocational agriculture.

It was recommended that further research be conducted on more comprehensive team teaching in other areas of agriculture. Instructors in multiple teacher departments might profitably use a variety of team teaching procedures, some of which could include instructors in other departments of the high school.

PATTON, WILLIAM P. Those Who Enroll for Vocational Agriculture in West Virginia.- Considering Certain Scholastic Achievements and Some Background Factors. Thesis, M.S., 1965, West Virginia University. 95 p. Library, West Virginia University, Morgantown.

Purpose. -- To determine differences between male West Virginia high school vocational agriculture students and male West Virginia non-vocational agriculture students in (1) mental ability, (2) general scholastic achievement, (3) specific scholastic subject areas, (4) participation in extra-curricular activities, (5) awards received, (6) farm background, (7) family size, and (8) residence population.

Method. -- A questionnaire was sent to male graduating students in 92 West Virginia high schools offering vocational agriculture. Approximately 65 per cent of the questionnaires were returned.

Findings. -- Male, non-agricultural students had a slightly higher average intelligence quotient than did male agricultural students. The mean intelligence quotient for non-agricultural students was 101. The mean for agricultural students was 96.

A class rank comparison showed an average of about thirteen per cent of the agricultural students and about twenty-two per cent of the non-agricultural students in the upper quartile. Forty per cent of the agricultural students scored in the lower quartile as compared to twenty-four per cent of the non-agricultural pupils.

A scholastic comparison of the agricultural and non-agricultural students based on a four point system showed that the non-agricultural group was slightly higher in grade point average in English, biology, algebra and geometry, business math, and social studies. The average over-all difference in the five academic areas was thirty-two hundredths of a point.

The non-vocational agriculture students had a higher percentage of participation in extra-curricular activities which amounted to an average of forty-one per cent. Seventy-seven per cent of the vocational agriculture students were from the farm while about twenty-five per cent of the non-vocational students were farm residents.

The average farm acreage where vocational agriculture students resided was consistently higher than the farm acreage where the non-agricultural students resided. The vocational agriculture student group had more brothers and more sisters than the non-vocational agriculture group.

Eighty-six per cent of the vocational agriculture students resided on farms or in the open country as compared to thirty-nine per cent of the non-agricultural boys. There were twice as many agricultural students from hamlets as non-agricultural students. Twenty-three per cent of the non-agricultural students were village residents, while only about five per cent of the agricultural students lived in villages.

PRICE, JOHN E. Employment Opportunities and Needed Competencies in Non-Farm Agricultural Occupations in the Wayland Central School District, Wayland, New York. Essay, M.Ed., 1965, Cornell University. 71 p. Library, Cornell University, Ithaca.

Purpose. -- To determine: (1) the employment opportunities in non-farm agricultural occupations in the Wayland Central School District, (2) the competencies needed for non-farm agricultural occupations in the Wayland Central School District, and (3) the changes needed in previously suggested interview schedules and in procedures for conducting studies of off-farm agricultural occupations.

Method. -- A survey of all businesses in the Wayland Central School District was made to determine employment opportunities in non-farm agricultural occupations. A twenty per cent, stratified, random sample of non-farm agricultural occupation workers was used in determining competencies needed for non-farm agricultural occupations.

Personal interviews were conducted in a total of 56 businesses and with 51 workers. Interview schedules were used to obtain data about employment opportunities, employment trends, and need competencies for non-farm agricultural occupations.

Findings. -- Two hundred forty-eight workers in non-farm agricultural occupations were found in 56 businesses. Nineteen per cent of the total number of workers were classed as non-farm agricultural workers.

For the period 1963 through 1968, it was estimated that 29 job openings in non-farm agricultural occupations could be expected.

Sixty per cent of the employers listed a high school education as being desirable and 27 per cent indicated that a post high school or technical school education was desirable. Thirty-four per cent of the workers received specialized training given by their company. Next in importance was training provided by the industry. Twenty-five per cent of the workers received industry training.

Action implied by the results of the study includes an expansion and revision of the program of work of the Agriculture Department of Wayland Central School to meet the needs for training in non-farm agricultural occupations. It was believed that modification of the course of study to include more competencies in non-farm agricultural occupations was needed.

SAVILLE, ROBERT G. The Role of the Flintstone Vocational Agriculture Department in Teaching Non-Farm Agricultural Occupations. Problem, M.S., 1965, West Virginia University. 55 p. Library, West Virginia University, Morgantown.

Purpose. -- To determine the non-farm agricultural opportunities in the Flintstone, Maryland, area with emphasis on areas of instruction which will place vocational agriculture students in employment that will meet their needs.

Method. -- The data for this study were collected by a questionnaire sent to thirty-two business establishments in eight areas of agribusiness. Twenty-four of the returned questionnaires were used in this study.

Findings. -- The survey showed that, each year, there are about 38 new employment opportunities in agribusiness in the Flintstone area. In each of the past five years, the Flintstone High School has graduated an average of eleven students in vocational agriculture. The information in this study emphasized the need for expanding the vocational agriculture program in the areas of agribusiness. The three largest levels of employment were semi-skilled, sales, and unskilled laborers. Other employment areas will need further education for occupational positions in agribusiness.

The study indicated that agribusiness, ornamental horticulture, forestry, farm management, farm mechanics, and Future Farmers of America should be incorporated into a course of instruction for the Flintstone community.

SCOTT, JOHN ALLEN. The Role of Vocational Agriculture in High School as to the Concepts of Agriculture College Deans, Boards of Education, and Farmers. Thesis, M.S., 1965, West Virginia University. 72 p. Library, West Virginia University, Morgantown.

Purpose. -- To determine the role of vocational agriculture in high schools. The objective was to improve the course of instruction to better meet the needs of the vocational agriculture student in supervised farming and supervised occupational experience.

Method. -- A questionnaire was set to Deans of Colleges of Agriculture in the eastern part of the United States, members of boards of education in West Virginia, and farmers in communities with vocational agriculture departments in West Virginia.

Findings. -- Those surveyed favored teaching fundamental principles of agriculture as well as skills. They also felt it was necessary that each teacher assume responsibility, while making supervisory farm visits, for checking the quality of student workmanship and to stress the need for becoming skilled in each job or unit of work included in the supervised farming program or supervised work experience program.

It was suggested by those surveyed that the vocational agriculture curriculum should consist of quite a detailed study of agriculture, related agriculture occupations, management, farm mechanics, leadership, family living, responsibility to community and country, cooperation, character, home improvement, skills, reading and writing, career opportunities, problem solving, proper use of credit, farm placement, conservation, and study of diseases and insects and their treatment or remedy. Vocational agriculture teachers should consider including these suggestions in their courses of instruction.

SHOUP, CHARLES A. Factors Affecting the Occupational Choice of Agricultural Education Graduates. Thesis, M.S., 1965, Cornell University. P. Library, Cornell University, Ithaca.

Purpose. -- The purpose of the study was to determine why some agricultural education graduates enter other occupations rather than teach vocational agriculture.

Method. -- The 123 men who were enrolled in the agricultural education program at Cornell University and who did their student teaching in vocational agriculture in the years 1955 to 1960 were included in the study. Selected background information concerning these graduates was obtained from their permanent college records. Questionnaires with forty-seven factors which might have influenced the decisions of agricultural education graduates to enter other occupations were sent to the thirty-nine graduates who had not taught vocational agriculture but who had entered a civilian occupation. They were asked to indicate whether each factor was very important, somewhat important, or not important in influencing their decision. By weighting each response a total score was computed for each factor. The graduates who had taught were compared by use of the Chi Square technique with those who had not taught but who had entered a civilian occupation.

Findings. -- Sixty-four per cent had taught vocational agriculture. Of those who had entered other civilian occupations, nearly 40 per cent entered other kinds of secondary school teaching, 27 per cent became county 4-H or agricultural agents, nine per cent became farmers and the remainder entered eight different occupations.

The ten factors which the respondents indicated as having had the strongest influence on their decisions to enter other occupations, in order of their importance, were: (1) More chance for personal achievement in the job taken, (2) The trend toward fewer Vo-Ag departments and less emphasis on Vo-Ag discouraged you from teaching it, (3) Felt that many Vo-Ag students aren't really interested in agriculture and/or farming, (4) The job taken offered greater possibilities for promotions and financial advancements, (5) The job taken offered promotions on the basis of your ability to a greater extent than teaching Vo-Ag does, (6) Only Vo-Ag teaching jobs available to you were in geographical areas where you did not care to live and/or teach, (7) Felt that many of your students in Vo-Ag would be below average academically, (8) Better way to reach your goals in life than by teaching Vo-Ag, (9) Was offered a higher starting salary in the job accepted, and (10) Your student teaching experiences discouraged you from teaching Vo-Ag.

When the teaching and non-teaching groups were compared, it was found that a significantly higher number of those with four to seven units of high school vocational agriculture taught than of those with none to two units. Those who were farm reared were found to have taught in significantly more cases than those who were not farm reared. A significant positive relationship was found between the grade received for student teaching and the incidence of teaching vocational agriculture.

No significant differences were found in grades received in the New York State High School Regents Examination in Vocational Agriculture, final college cumulative average, or age at graduation.

SHOWERS, SAMUEL A., JR. Adult Education Action Research on the Effect of Selected Poultry Management Factors on Production of Marketable Eggs. Thesis, M.Ed., The Pennsylvania State University. 57 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To determine relationships of selected poultry management factors with the production of marketable eggs and to identify areas of poultry management which need to be emphasized during on-farm instructional visits with adult farmers.

Method. -- Six commercial poultry farms in Clarion County, Pennsylvania, were surveyed to determine results of laying flock management practiced. A checklist was used to determine the degree to which seven approved practices were being followed. On each farm certain management practices were changed and effects noted. Comparisons were made among five farms in percentage of cracked and broken eggs when the number of times eggs were gathered per day was changed from two to three.

Findings. -- All farms gathered eggs at least twice a day. There was no significant difference in cracked and broken eggs between two and three times a day gathering. The percentage of cracked eggs on the farms was high, indicating need for more careful management. Not over-filling the baskets was an important consideration in keeping the percentages of cracked and broken eggs to a minimum. Careful handling of the egg baskets also helped reduce the cracked egg percentage.

Nest usage by pullets and hens seemed to be an important consideration in the study. On one occasion the percentage of cracked eggs rose when the layers crowded into a group of nests close to a ventilator during a period of hot weather. On another occasion pullets refused to lay in approximately one-third of the available nests. Bird preference for nests requires further investigation.

Generally speaking, poultrymen need to become aware of the areas of poultry management concerned with egg handling. Emphasis on careful egg handling can be accomplished through planned, systematic, on-farm instruction.

SOPER, JOSEPH G. Occupational Adjustments, Knowledge, Skills, and Abilities Needed by Young Men Employed by Farm Machinery Dealers. Thesis, M.Ed., 1965, The Pennsylvania State University. 81 p. Library, The Pennsylvania State University, University Park.

Purpose. -- To identify occupational adjustments, knowledge, skills, and abilities needed by young men desiring employment and advancement in farm equipment service and sales and to determine to what degree they can be trained as a group.

Method. -- Mechanical, manipulative, and managerial competencies were selected and listed in a survey form. There were six job areas defined. The job areas were mechanic, parts man, field man, assistant manager or manager, salesman, and bookkeeper. Ten farm machinery dealers were interviewed. On the survey form, the dealers indicated the competencies needed and the degree of competency required for each job area. The data were compiled for each job area to determine how much of the training could be offered to classes of students preparing for any of the job areas.

Findings. -- A general knowledge of agriculture and farm background were found to be of value for all job areas. The training for mechanic and field man, for the most part, can be similar. The manager, assistant manager and salesman need to have an understanding of production agriculture as well as of the farm machinery business. The field mechanic needs training beyond the shop mechanic in that he must keep up-to-date on farm practices. The bookkeeper and parts man should have special business training.

There should be increased counseling of students and greater cooperation among departments in schools. Suggestion of the importance of educating people to realize the value of continued education was made often by the dealers interviewed.

STEFFY, ROBERT E. An Experiment in the Effectiveness of Combining the Teaching of Business Principles with Farming Program Record Keeping. Thesis, M.Ed., 1965, The Pennsylvania State University. 35 p. Library, The Pennsylvania State University, University Park.

Purpose. -- (1) To develop teaching resource materials on business principles and forms and procedures for use with the Pennsylvania Farming Program Record Book, (2) to test the instructional value of these materials in classes of ninth grade vocational agriculture students, and (3) to determine whether the materials developed were of greater interest to students with an opportunity to enter farming than to students without this opportunity.

Method. -- A 90-page booklet titled The Application of Selected Business Principles to Farming Program Record Keeping, a resource unit for instructors and students, was prepared. The business principles suggested by the preliminary pages in the record book were explained, examples of proper business procedure were given, and business forms and instruments were provided for the students to study and complete.

Forty-five ninth grade students in four high schools in Indiana County, Pennsylvania, were provided a copy of The Application of Selected Business Principles to Farming Program Record Keeping when they received the official record book and their first instruction in record keeping. Fifty-eight students in four other high schools in the same county in the same period in October and November, 1964, were taught by the instructor's own method of teaching record keeping, and completed the same pages as the other group. Intelligence test scores of the students were used as a control variable. Final test scores were the criterion measure.

Findings. -- Students in the classes that had the experimental resource materials scores significantly higher than those taught by the teacher's own method. There was no significant difference in the interest of the students with and without an opportunity to enter farming. The experimental booklet saved time on the part of both the instructor and the student.

It was concluded that the resource materials met the immediate needs of ninth grade students studying record keeping for the first time. The teaching of practical business principles can be interesting to students planning to enter any occupation. Teachers of vocational agriculture can teach business principles successfully when student materials on business principles are provided.

WILKINS, VIRGIL L. An Analysis of Factors Which Discriminate in Selection of National FFA Chapter Award Winners. Thesis, M.S., 1965, University of Maryland. 152 p. Library, University of Maryland, College Park.

Purpose. -- (1) To determine which standards in the application form for a National Chapter Award discriminate between the achievement levels of National Gold, Silver, and Bronze Emblem Chapters and (2) to determine the relationship of size of chapter membership to the type of award won.

Method. -- Data were taken from National Chapter Award application forms for 1962, 1963, and 1964. Criteria for analysis of data were: (1) number of standards completed, (2) percent of membership participation, and (3) quality and appropriateness of activities conducted. To determine quality and appropriateness values for the thirty-two standards, for which descriptive material was reported, an instrument for ranking activities was sent to five individuals who served as national judges during the aforementioned years. Chi-square was used to determine the significance of differences and the relationship among variables.

Findings. -- The findings were: (1) Fifty-two per cent of the objective type standards failed to discriminate in the selection of National Chapter Award winners. (2) For the most part, standards requiring subjective, descriptive type reports were highly discriminating and were, therefore, essential in the report form. (3) Size of chapter membership was not a function of the type of award won. (4) Several Bronze Emblem Chapter award winners completed less than one-half of the ninety-three standards. (5) There was lack of neatness and lack of adherence to contest rules in the preparation of many forms. (6) Chapters that won a National Emblem Award two or more consecutive years tended to record the same information and activities on each year's application form.

The findings led the investigator to conclude that a revision of the report form and the accompanying rules should be made.